Development of a Global Marine Environmental Library

M.E. Schexnayder, B. Scott Hall, and M. Bourgeois
Naval Oceanographic Office
Ocean Projects Department
Stennis Space Center, MS 39522 USA

***Abstract*-The Ocean Projects Department of the Naval Oceanographic Office (NAVOCEANO) is developing a Global Marine Environmental Library (GMEL) of academic ocean environmental studies. The purpose of GMEL is to provide an easy to use, accessible set of unclassified, academically-validated publications or references to NAVOCEANO users. These published studies have been approved and released for inclusion into GMEL and will include a collection of various public reports, publications, analyses, interpretations, and compilations of academic works across large ocean regions. The importance of such works lies in the academic interpretation of the marine environment and associated dynamic processes. GMEL will be organized primarily by ocean region, and presently, three academic institutes are participating in developing an effective organizational library structure. It is intended for this effort to be a first step toward promoting interest among academic members to join and participate in the Global Marine Environmental Library.**

I. Introduction

The Oceans Projects Department of the Naval Oceanographic Office (NAVOCEANO) is developing a Global Marine Environmental Library (GMEL) comprised solely of academic marine environmental studies. GMEL, originally named the Digital Environmental Library, is a collection of academic publications, analyses, interpretations, regional compilations, graphics/images (jpgs), profiles, tables, charts, and bibliographies of large ocean regions.

II. Purpose

The purpose of GMEL is to provide academically-validated publications and/or references with marine environmental interpretations to NAVOCEANO users in an easy-to-use, readily accessible, library catalog. Ready access to publications and interpreted analyses can (1) provide cross-checks of NAVOCEANO survey data against independent, research measurements; (2) complement measurements in ocean regions with sparse data holdings; (3) maximize pre-survey planning and locations of oceanographic equipment deployment; (4) describe processes that create measured or observed conditions; (5) enhance geophysical and oceanographic databases and ocean models; (6) identify potentially hazardous marine conditions encountered by other survey groups; (7) provide state-of-the-art knowledge of oceanographic research developments regarding the marine environment, as well as historical peer-reviewed journal publications [1]; and (8) provide academic publications in a digital format to help avoid repetitive, time-consuming searches.

III. Library Structure

Presently, three academic groups, Woods Hole Oceanographic Institution, College of William and Mary / Virginia Institute of Marine Sciences, and North Carolina State University / Department of Marine, Earth and Atmospheric Sciences, are participating in determining the organizational structure of the strawman library and will load respective strawman contents into a best-fit structure. Currently, GMEL will be organized using a layered structure.

Layer 1 will be the Ocean Region (Fig. 1) and will present an image of the world map with a number of selectable modules, each corresponding to a specific ocean region. Layer 2 will consist of several parallel region-specific modules; each module corresponds to one specific geographic region, for example, the South China Sea. Within each of the region-specific pages in Layer 2 (for example the South China Sea page), there will be several selectable or click - on modules of specific contents, including the following: (1) Physical Oceanography (including selectable, click - on panels of *Hydrography, Currents/Temperature/Salinity, Remote Sensing, Monsoon, ENSO, Seasonality*, etc.); (2) Seafloor Morphology and Geological Oceanography (including *Bathymetry, Side-Scan Sonar, Seismic Stratigraphy, Gravity/Magnetics, Sediment and Rock Types*, etc.); (3) Biological Oceanography (including *Phytoplankton, Zooplankton, Benthos, Bioluminescence*, etc.); and (4) Chemical Oceanography (including various *ocean water chemical concentrations, variability*, etc.).

Each of these modules will contain various relevant contents including publications, graphics, images/jpgs, profiles, photographs, charts, raw data, tabular data sets, and bibliographies. These entries will be organized, stored, and displayed using commonly available software to provide easy access. The preparation of a user friendly interface [2] [4], with index maps and/or summaries of contents at the top layer will help minimize cumbersome, dead end, or repetitive data searches.

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14. ABSTRACT
The Ocean Projects Department of the Naval Oceanographic Office (NAVOCEANO) is developing a Global Marine Environmental Library (GMEL) of academic ocean environmental studies. The purpose of GMEL is to provide an easy to use, accessible set of unclassified, academically-validated publications or references to NAVOCEANO users. These published studies have been approved and released for inclusion into GMEL and will include a collection of various public reports, publications, analyses, interpretations, and compilations of academic works across large ocean regions. The importance of such works lies in the academic interpretation of the marine environment and associated dynamic processes. GMEL will be organized primarily by ocean region, and presently, three academic institutes are participating in developing an effective organizational library structure. It is intended for this effort to be a first step toward promoting interest among academic members to join and participate in the Global Marine Environmental Library.

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
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IV. Ocean Regions

Presently, the strawman GMEL is being configured for 12 ocean regions (Fig. 1). These regions include (1) Central Pacific Ocean, (2) Northeast Pacific Ocean, (3) Gulf of Mexico, (4) Northeast Atlantic Ocean, (5) Nordic Seas, (6) Southeast Atlantic Ocean, (7) Middle East Marginal Seas/West Indian Ocean, (8) East Indian Ocean, (9) South Asian Marginal Seas, (10) East Asian Marginal Seas, (11) Northwest Pacific Ocean, and (12) Southwest Pacific Ocean [5]. GMEL will be populated by academic members who want to partner with NAVOCEANO.

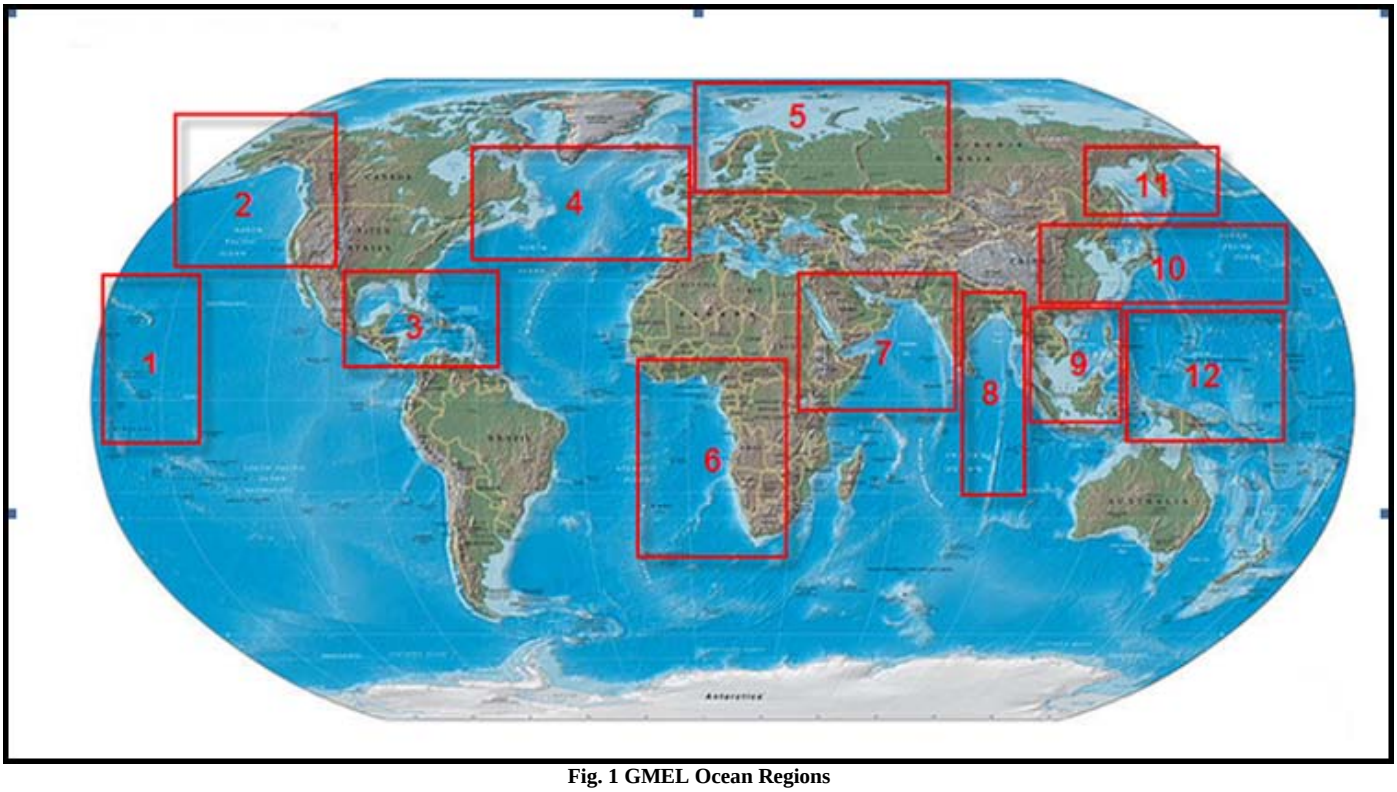

Fig. 1 GMEL Ocean Regions

V. Example of Summary Entry - Top of Layer 2

The following example illustrates the concept of a summary description that will be located at the top of Layer 2/Layer 3. The development of an accurate description with graphic is aimed at helping the user determine subject matter contents by more than just the title. This graphic summary is designed to show only an example of the type of interpreted data set and the location map and to provide some explanation of the content of the publication. The full publication or reference with all text, graphics, tables, etc. will be found in the next layer. Fig. 2 is taken from a 1996 Woods Hole Oceanographic Institution publication [3].

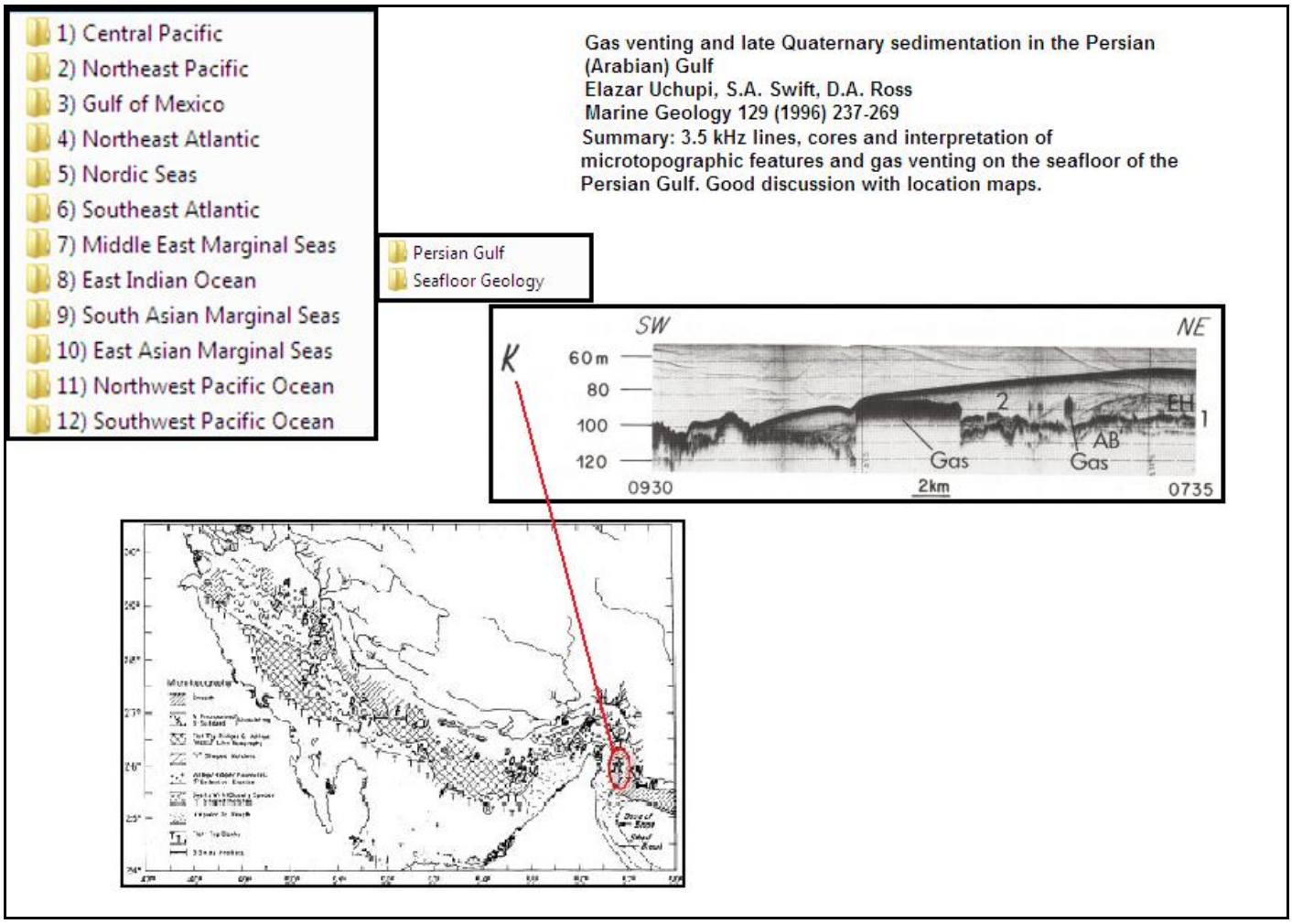

Fig. 2 GMEL – Example of Summary Entry Located at Top of Layer 2

VI. Summary

The first strawman version of GMEL is anticipated to be ready by October 2010. At this time, GMEL will be loaded onto portable hard drives by the respective academic groups and tested by NAVOCEANO internal users. This effort is another method for NAVOCEANO to partner with the academic community and will serve as an invitation to more academic members to join the NAVOCEANO Global Environmental Marine Library.

VII. REFERENCES

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